

**THE UNIVERSITY OF CHICAGO**

**THE UNIVERSITY OF CHICAGO**

[illegible]

**THE UNIVERSITY OF CHICAGO**

**THE UNIVERSITY OF CHICAGO**

[illegible][illegible]

key being used when encrypting prescribed data for transmission to an external party in order to obtain from said external party a password required to reproduce said optical disk.

7. An optical disk according to claim 5, wherein said ID information is encrypted or applied a digital signature to.

8. An optical disk according to claim 7, wherein a secret key of a public key encryption function is used when applying encryption or a digital signature to said ID information.

9. An optical disk according to any one of claims 1 to 8, wherein said optical disk is constructed from two disk-substrates laminated together.

10. An optical disk barcode forming method wherein pulsed laser light from a light source is made into a rectangular beam pattern by using a rectangular mask and said rectangular beam pattern is focused on a reflective film in a pre-pit signal region in a prescribed radius portion of an optical disk on which data is recorded, and at the same time, said optical disk is rotated, thereby forming a plurality of rectangular reflective-film-removed regions as a barcode in the same radius portion on said reflective film.

11. An optical disk barcode forming method according to claim 10, wherein said optical disk includes a control data area for holding therein physical feature information

concerning said optical disk, and an identifier for indicating the presence or absence of said barcode is recorded in said control data area.

12. An optical disk barcode forming method according to claim 11, wherein said barcode is formed in such a manner that two or more barcode signals cannot occur within one prescribed time slot.

13. An optical disk barcode forming method according to any one of claims 10 to 12, wherein said optical disk is constructed from two disk-substrates laminated together.

14. An optical disk reproduction apparatus wherein recorded contents of a main data recording area, recorded by forming pits on an optical disk, are reproduced by using a rotational phase control for a motor, while recorded contents of a different recording area than said main data recording area, recorded by selectively forming low-reflectivity portions on a reflective film in said different recording area, are reproduced by using rotational speed control for said motor, and

the recorded contents of said main data recording area and the recorded contents of said different recording area are both reproduced by using the same optical pickup.

15. An optical disk reproduction apparatus according to claim 14, wherein tracking control is not performed in said different recording area.

16. An optical disk reproduction apparatus according to

claim 14, wherein tracking control is, in effect, performed in said different recording area.

17. An optical disk reproduction apparatus according to claim 16, wherein said rotational speed is the rotational speed that would be achieved in said different recording area if said rotational phase control were applied.

18. An optical disk reproduction apparatus according to claim 14, wherein the rotational speed of said motor in said rotational speed control is maintained at a prescribed value based on a result obtained by measuring a minimum-length pit in said different recording area.

19. An optical disk reproduction apparatus according to claim 14, wherein said low-reflectivity portions are a barcode formed by selectively removing said reflective film.

20. An optical disk reproduction apparatus according to claim 14, wherein

said low-reflectivity portions are a barcode, and when reproducing the recorded contents of said different recording area, a high-frequency-component signal generated during reproduction of said pits is reduced or eliminated by a low-pass filter, thereby making it possible to separate a signal which is reproduced from said barcode.

21. An optical disk reproduction apparatus according to claim 14, wherein

said low-reflectivity portions are a barcode, and

when reproducing the recorded contents of said different recording area, the width of a signal obtained by reading said barcode is increased to a prescribed width and then measured with sampling pulses from a control section.

22. An optical disk reproduction apparatus according to any one of claims 14 to 21, wherein said optical disk is constructed from two disk-substrates laminated together.

23. An optical disk reproduction apparatus according to claim 14, wherein said optical disk includes a control data area for holding therein physical feature information concerning said optical disk, and an identifier for indicating the presence or absence of said barcode is recorded in said control data area.

24. An optical disk reproduction apparatus according to claim 23, wherein, after reading recorded contents of said control data area and judging the presence or absence of said barcode, it is determined whether an optical pickup should be moved to an inner portion or an outer portion of said optical disk.

25. A marking forming apparatus comprising:

marking forming means for applying a marking on a reflective film formed on a disk;

marking position detecting means for detecting a position of said marking; and

position information writing means for converting at

20070102020

20070102020

20070102020

20070102020

20070102020

20070102020

writing information concerning a result of said digital signature application to said disk.

29. A reproduction apparatus comprising:

position information reading means for reading position information of a marking or information concerning said position information, said position information or said information being formed by (1) applying a marking on a reflective film formed on a disk, (2) detecting position of the marking, (3) converting detected said position information or said information into a barcode, and (4) writing the barcode with selectively removing said reflective film on said optical disk on which data is recorded with CLV;

marking reading means for reading information concerning a physical position of said marking;

comparing/judging means for performing comparison and judgement by using a result of reading by said position information reading means and a result of reading by said marking reading means; and

reproducing means for reproducing data recorded on said optical disk in accordance with a result of the comparison and judgement performed by said comparing/judging means,

wherein all or part of said barcode is written in overwriting fashion to a prescribed region of a pre-pit signal area on said optical disk.

30. A reproduction apparatus according to claim 29, wherein at least said detected position information or

information concerning said position information is written to said disk by position information writing means.

31. A reproduction apparatus according to claim 30, wherein

said position information writing means includes encrypting means for encrypting at least said detected position information or information concerning said position information, and

said position information reading means includes decrypting means corresponding to said encrypting means, and by using said decrypting means, decrypts said encrypted position information or information concerning said position information.

32. A reproduction apparatus according to claim 30, wherein

said position information writing means includes digital signature means for applying a digital signature to at least said detected position information or information concerning said position information, and writes information concerning a result of said digital signature application to said disk,

and said position information reading means includes

authenticating means corresponding to said digital signature means, and

position information extracting means for obtaining said position information from an



1004-1005

1004-1005

1004-4000

1004-4000

1004-4000

signal area on said disk.

34. A method of manufacturing a disk, comprising the steps of:

forming at least one disk;  
forming a reflective film to said formed disk;  
applying at least one marking to said reflective film;  
detecting at least one position of said marking; and  
applying a digital signature to said detected position  
information and writing onto said disk,

wherein, when applying said digital signature and  
writing, at least a result of said digital signature is  
converted into a barcode, and said barcode is written by  
selectively removing said reflective film on said disk on  
which data is recorded with CLV, all or part of said barcode  
being written in overwriting fashion to a prescribed region  
of a pre-pit signal area on said disk.

35. A disk wherein a marking is formed by a laser to a  
reflective film of said disk holding data written thereon,  
at least position information of said marking or information  
concerning said position information is encrypted or applied  
a digital signature, at least said encrypted information or digital  
signature-appended information is converted into a barcode,  
and said barcode is written by selectively removing said  
reflective film on said disk on which data is recorded with  
CLV, all or part of said barcode being written in

overwriting fashion to a prescribed region of a pre-pit  
signal area on said disk.

10066901. 020402